

Amendments to Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (canceled)

2. (currently amended) A ~~system~~ non-contacting rotary joint for ~~broadband~~ transmission of digital signals between at least one first unit and at least one second unit ~~mobile along a predetermined path relative to said first unit, via non-contacting rotary joints, rotatable relative to each other,~~ wherein said first unit comprises:

~~a data source for generating a serial data stream;~~

a transmitter for generating electrical signals from ~~said~~ a serial data stream from ~~said~~ a data source;

a controller coupled between said data source and said transmitter for controlling said serial data stream by converting a data rate or data package size of said data source into a desired value of data rate or data package size, wherein said controller comprises:

means for storing data from the serial data stream;

means for storing a transmission function, which serves to adapt the desired value of data rate or data package size in a dynamic manner based on a position of the first and second units relative to each other or based on a point of time; and

means for outputting the stored data to said transmitter in accordance with the dynamically adapted desired value of data rate or data package size; and

a transmitter conductor array for conducting said electrical signals generated by said transmitter;

wherein said second unit comprises:

a receiving antenna for tapping electrical signals in the near field of said transmitter conductor array;

a receiver for receiving the signals tapped by said receiving antenna; and

forwarding the signals to a data sink for subsequent processing of the signals received by said receiver.

3. (canceled)

4. (currently amended) The ~~system~~ non-contacting rotary joint according to Claim 2, wherein the dynamically adapted desired value is determined by a desired-value generator according to actual transmission characteristics of a data transmission path between said transmitter and said receiver.

5. (currently amended) The ~~system~~ non-contacting rotary joint according to Claim 2, further comprising an analyzer coupled between said receiver and said data sink, wherein said analyzer is configured for signaling incorrectly transmitted data to said controller by means of an additional transmission path, and wherein said controller is configured for repeating said incorrectly transmitted data packages upon request by said analyzer.

6. (currently amended) The ~~system~~ non-contacting rotary joint according to Claim 2, further comprising a micro controller coupled for controlling or diagnosing the system.

7. (currently amended) The ~~system~~ non-contacting rotary joint according to Claim 2, wherein the system is self-learning and adapts itself dynamically to respective conditions of operation.

8. (currently amended) A method of ~~broadband~~ transmission of digital signals between at least one first unit and at least one second unit mobile along a predetermined path relative to said first unit, via non-contacting rotary joints, said method comprising:

- generating a serial data stream from a data source on said first unit;
- generating electrical signals from said serial data stream with a transmitter on said first unit;

- controlling said serial data stream, with a controller on said first unit, by:

- storing data from the serial data stream;
 - dynamically adapting a data rate or data package size of the serial data stream into a desired value of data rate or data package size based on a position of the first and second mobile units relative to each other or based on a point of time; and
 - signaling the desired value of data rate or data package size to said data source or said transmitter;

- conducting said electrical signals generated by said transmitter with a transmitter conductor array on the first unit;

- tapping electrical signals in the near field of said transmitter conductor array with a receiving antenna on said second unit as said first and second units are rotating relative to each other;

- receiving the signals tapped by said receiving antenna at a receiver on said second unit; and

- processing the signals received by said receiver in a data sink on said second unit.

9. (previously presented) The method according to Claim 8, wherein the step of dynamically adapting the desired value of data rate or data package size further comprises selecting the desired value of data rate or data package size in correspondence with actual transmission characteristics of a data transmission path between said transmitter and said receiver.

10. (previously presented) The method according to Claim 8, wherein said step of controlling the serial data stream comprises supplying the desired value of data rate or data package size to said transmitter.

11. (previously presented) The method according to Claim 8, wherein said step of controlling the serial data stream comprises storing data from the serial data stream if the desired data rate is lower than a rate at which the serial data stream is generated by the data source in said generating step.

12. (currently amended) The ~~system~~ non-contacting rotary joint according to Claim 2, further comprising a decoder coupled to or included within said receiver for converting a data rate or data package size of the signals received by said receiver into the data rate or data package size generated by said data source.

13. (currently amended) A ~~system~~ non-contacting rotary joint for ~~broadband~~ transmission of digital signals between at least one first unit and at least one second unit ~~mobile along a predetermined path relative to said first unit, via non-contacting rotary joints,~~ rotatable relative to each other, wherein said first unit comprises:

~~a data source for generating a serial data stream;~~

a transmitter for generating electrical signals from ~~said~~ a serial data stream from ~~said~~ a data source;

a controller coupled between said data source and said transmitter for controlling said serial data stream by converting a data rate or data package size of said data source into a desired value of data rate or data package size, wherein said controller comprises:

means for storing data from the serial data stream; and

means for outputting the stored data to said transmitter in accordance with the desired value of data rate or data package size; and

a transmitter conductor array for conducting said electrical signals generated by said transmitter, wherein the transmitter conductor array defines a transmission path between the transmitter of the first mobile unit and a receiving antenna of the second mobile unit, wherein the transmission path is subdivided into segments, and wherein said electrical signals are conducted exclusively at positions where segments of the transmission path are present.

14. (currently amended) ~~The system non-contacting rotary joint as recited in~~ according to claim 13, wherein said second unit comprises:

the receiving antenna for tapping electrical signals in the near field of said transmitter conductor array;

a receiver for receiving the signals tapped by said receiving antenna; and

forwarding the signals to a data sink for subsequent processing ~~of the signals received by said receiver.~~